Propolis

Propolis was used as a general cure-all in the 17th century in London and is undergoing a revival with the advent of health food shops and the Internet.

Propolis is made when bees collect various sticky substances like resins that poplars and conifers exude to protect wounds, and once mixed with wax use these to construct and maintain their hives. It has a complex structure that depends on its plant origins. As many plant products do, propolis contains phenolics, and various aromatic compounds, volatile oils and terpenes.

Propolis is harvested from the bees when they encounter a grid placed over the hive entrance. Bees are not too fussy about what they collect and road tar, drying paint and caulking compounds are collected too. It can accumulate environmental pollutants, such as lead from paints on hives, in metallic hive spacers, in the air from petrol, and industry, as well as drugs used to cure bee illness, and hive waste. South American propolis has been reported as having excessive lead contamination.

The curative properties of propolis supposedly relate to antimicrobial and anti-tumour flavonoids. Laboratory tests show that its components do have some antimicrobial properties (which are not significant enough to meet the claims made), but most plants contain compounds that would have similar properties.

Propolis is poorly soluble in water but usually soluble in alcohols. When prepared for medicinal use it can cause contact dermatitis, which is well known in apiarists, and other allergic reactions including oral mucositis with ulceration when taken as a lozenge. Following alcohol extraction and maturation for 50-60 days, propolis is filtered and added to honey (10%), wax extract and peppermint. Such mixtures are used topically to heal wounds but any individual efficacy assessment of propolis would be difficult.

Propolis is claimed to strengthen veins, revitalise cells, improve the immune system, have antioxidant, anti-cancer and antiinflammatory properties. Apparently it can anaesthetise the pains suffered by domestic animals undergoing abdominal surgery. There are no clinical studies that show propolis to be of use to any human condition. However, don't discourage the bees from collecting propolis—it has proven efficacy in beehive repair and it can be used to make varnish.

Pollen

Pollen is collected from many plants and screened from the bees' legs as they return to the hive. It is not a uniform product and can be hazardous for people with allergies.

Pollen is renowned for having extremely tough outer casings that keep intact for centuries, so to add credibility to their product, some manufacturers blast the pollen to "potentiate" it, i.e. crack the pollen's outer coating. Photographs of the results of this process are far from convincing. An Australian experiment showed pollen digestibility was only 50-59%, despite its favourable protein content and amino acid patterns.

Bee pollen is potentially very dangerous due to its causing allergies characterised by asthma, hives, and anaphylactic shock. A major culprit is pollen from *Compositae*, such as dandelions and sunflowers.

Pollen is claimed to be a stimulant for recovery after illness and an aid for impotence and alcoholism, anaemia and digestive upsets. Studies have failed to prove any benefit for athletes and the danger of allergy was considered too great for sports medicine doctors to recommend it. All the vitamins and minerals in bee pollen can be gained by eating a balanced diet thereby saving money and getting other nutrients as well.

Royal Jelly

Packaged attractively like shiny (very expensive) jelly beans, royal jelly comprises proteins, sugars and lipids secreted by worker bees to feed the queen, queen larvae and other young larvae.

Royal jelly is said to be antibacterial in humans and may well be cosmetically, but taken orally all the antibacterial properties disappear when the pH is higher than 6 (the human gut is maintained at pH 7.4). There are no controlled experiments that support claims of internal usefulness.

Royal jelly claims to increase vitality and energy, produce stronger nails and hair, a more radiant complexion, stress relief, better digestion, improved liver function and relief from insomnia. One bee product paper says that "Royal jelly cannot be imitated by science or its beneficial properties accurately understood, but there is overwhelming evidence that it improves health". Far from it, deaths have been reported from allergic reactions.

Bee venom

There may be a legitimate use for bee venom in desensitising allergy sufferers, but extensive claims for this product have seen it listed as one of the FDA's top 10 health frauds,

Bee venom has been variously claimed to cure numerous muscular conditions, arthritis, gout, and multiple sclerosis. More adventurous claims imply that it can treat high blood pressure, asthma, hearing loss and premenstrual tension. Reports of therapeutic success are anecdotal and there are no records of placebo-controlled trials. It is available in topical creams for applying to sore joints or muscles, and as an ingredient in a manuka honey preparation for oral use.

Bee venom consists of approximately 40 compounds including at least two toxins, one of which, mellitin, is the cause of the pain inflicted by bee stings. It also has several compounds that can cause irritation and inflammation, such as histamine, phospholipase A_2 and hyaluronidase. Far from being anti-inflammatory as suggested, these compounds are likely to aggravate the effects of the toxins, and produce the "favourable" reddening and heat observed when used.

Bee venom can cause anaphylactic shock and generally there are warnings of this on the product's containers. Originally administered to patients by live bees, the venom is said to be especially efficacious if the sting (or injection) is aimed at an acupuncture point.

Usually a bee loses a substantial part of its abdomen when it stings, causing it to die. Bee venom is collected by shocking the bees electrically to encourage them to sting a fine membrane at the entrance to the nest The bee can retract its sting and the venom is scraped off and processed. Reportedly not too many bees die in the process, though beekeepers can suffer from lung irritation from the dried venom.

Numerous companies in the US have been charged
with making false or misleading claims as part of their marketing, and informercial producers have been fined for misrepresenting their paid ads as news or documentary programs.

References:

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Bee Products

Those who claim bee pollen cures or alleviates any illness or produces therapeutic benefit are promoting the product as a drug. Recently FDA asked that all shipments of a particular product and its promotional literature, advocating use of pollen in this sense, be recalled by the manufacturer. Other steps may also be taken, including seizure, injunction and criminal prosecution.

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Bee pollen and royal jelly should be regarded as potentially dangerous because they cause allergic reactions. People allergic to specific pollens have developed asthma, hives, and anaphylactic shock after ingesting pollen or royal jelly. Neurologic and gastrointestinal reactions have also been reported. Some cases of asthma and anaphylaxis have been fatal.

Quackwatch: http://quackwatch.com